

O/I/P/E
MAR 15 2004
U.S. PATENT & TRADEMARK OFFICE

BLEOMYCIN GENE CLUSTER COMPONENTS

AND THEIR USES

Ben Shen *et al.*

Serial No: 09/477,962

Atty Docket NO: 407T-895820US

1/19

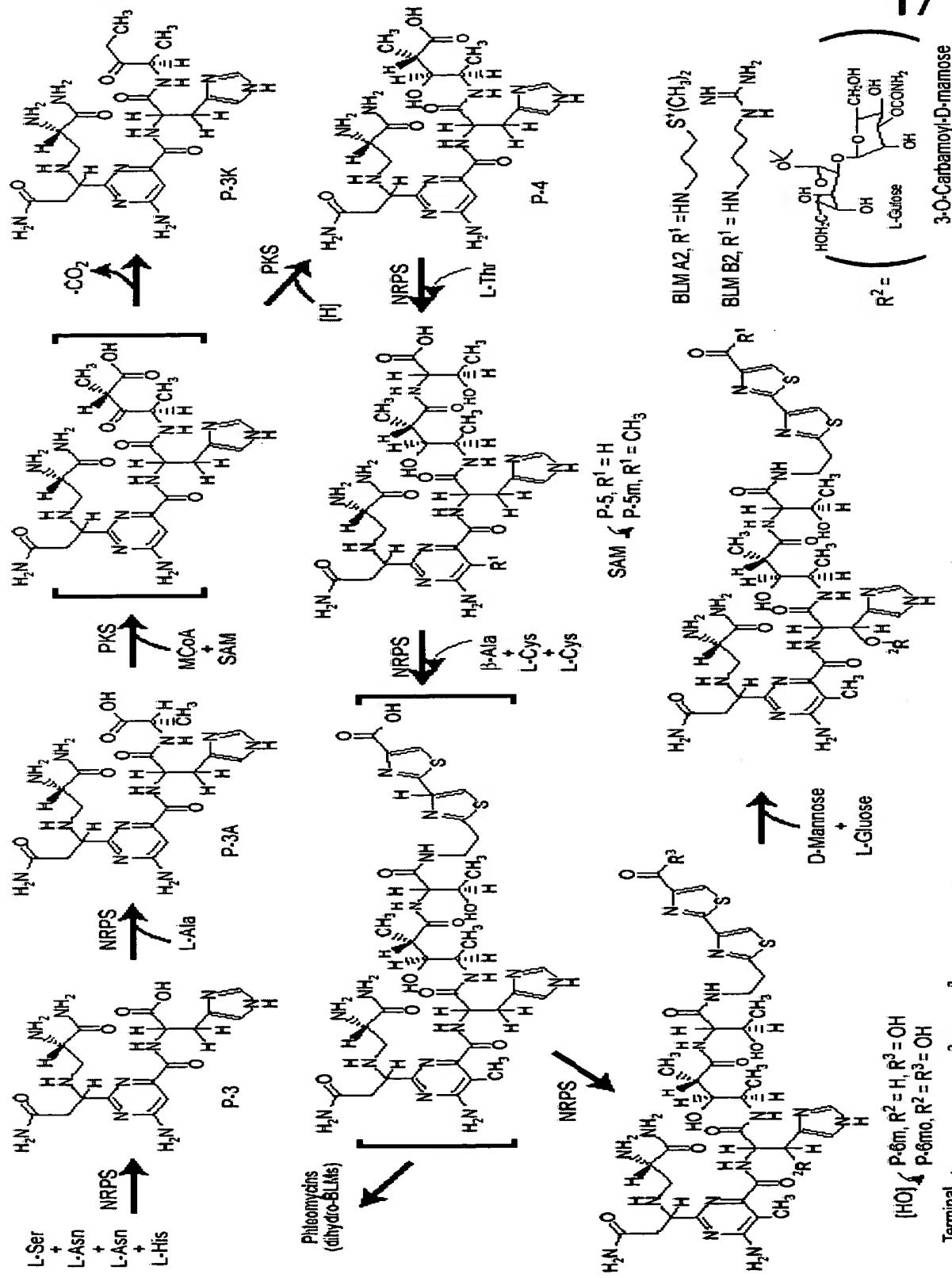


Fig. 1A

O I P E
MAR 15 2004
SEARCHED & INDEXED
U.S. PATENT & TRADEMARK OFFICE

BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES
Ben Shen et al.
Serial No: 09/477,962
Atty Docket NO: 407T-895820US

2/19

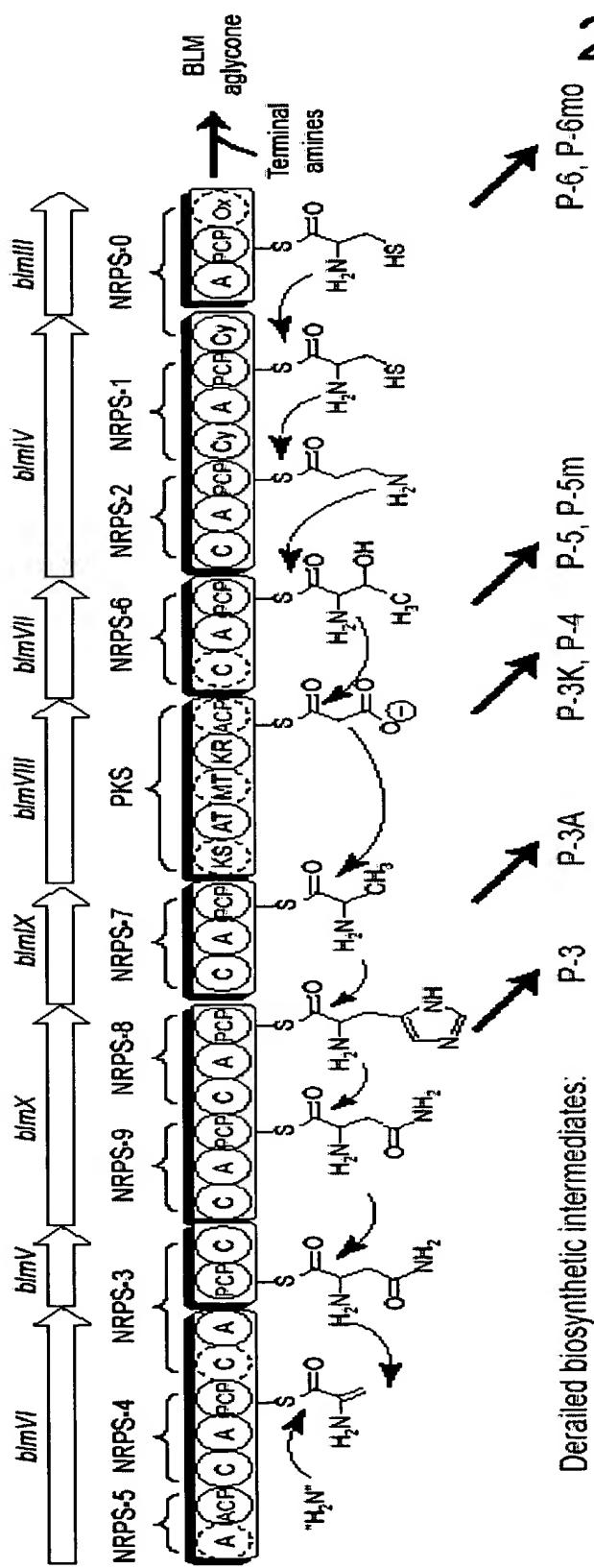


Fig. 1B

Detailed biosynthetic intermediates:

P-3 P-3A P-3K, P-4 P-5, P-5m P-6, P-6m0



BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES

Ben Shen et al.

Serial No: 09/477,962

Atty Docket NO: 407T-895820US

3/19

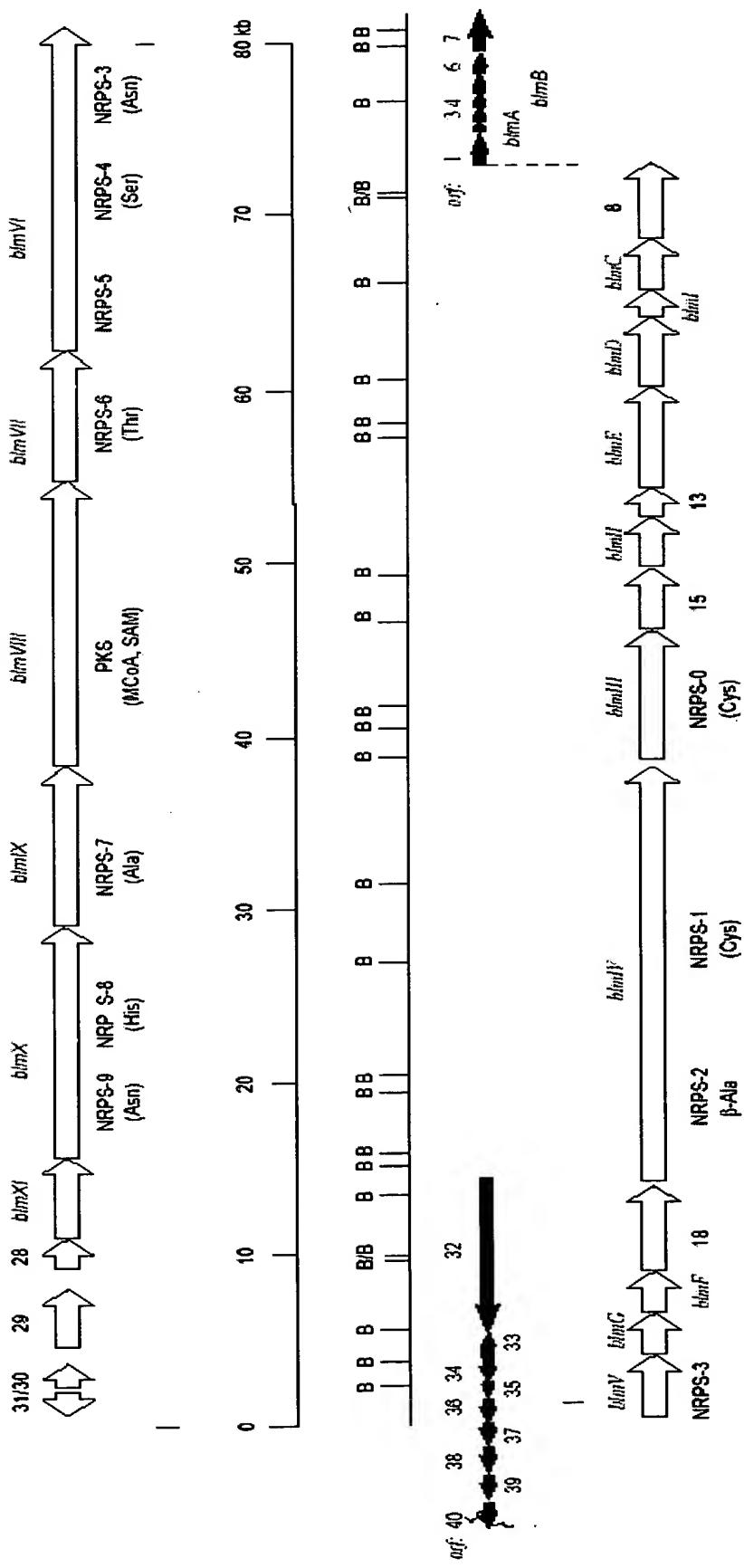


Fig. 2



BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES
Ben Shen *et al.*
Serial No: 09/477,962
Atty Docket NO: 407T-895820US

7/19

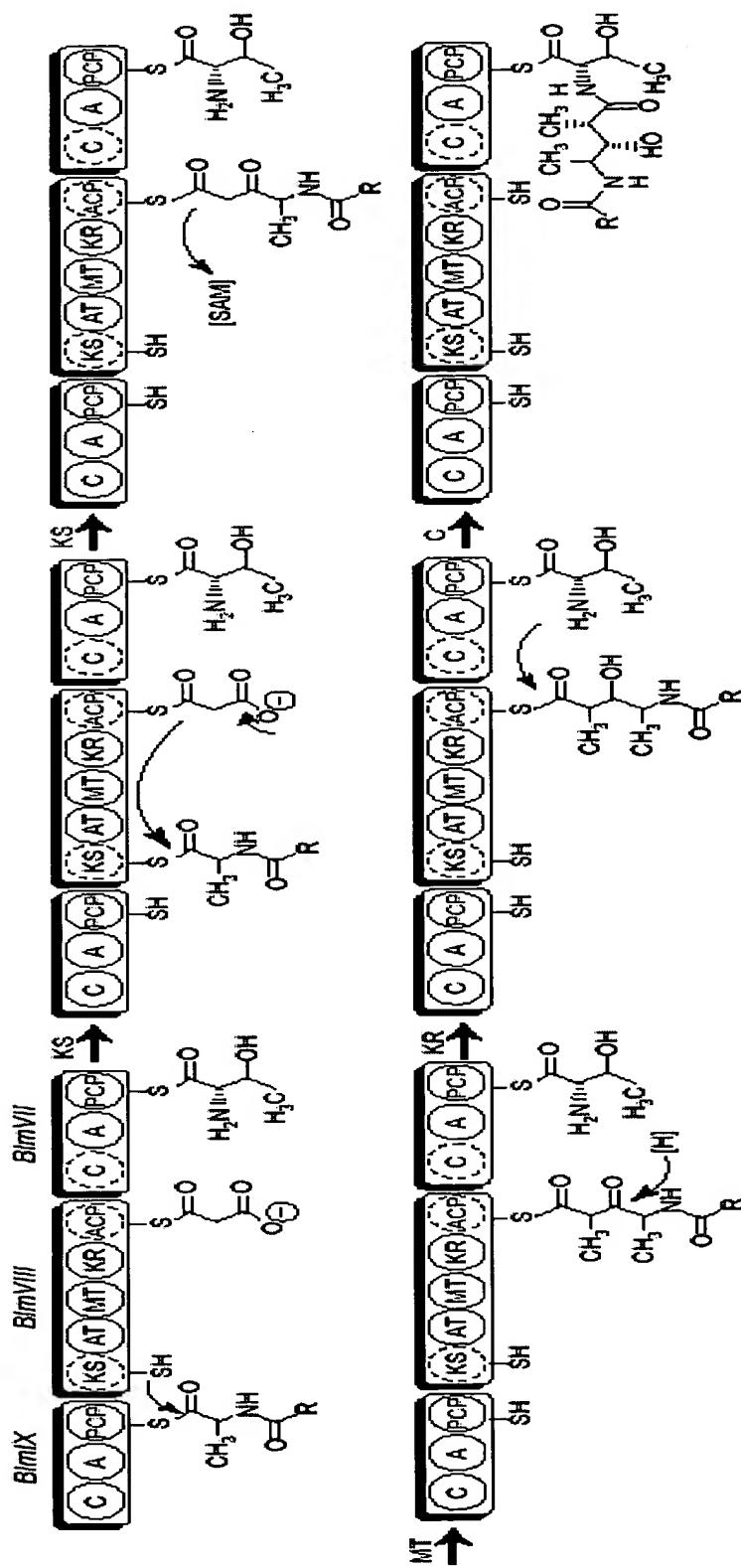


Fig. 4



BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES
Ben Shen *et al.*
Serial No: 09/477,962
Atty Docket NO: 407T-895820US

9/19

Fig. 6A

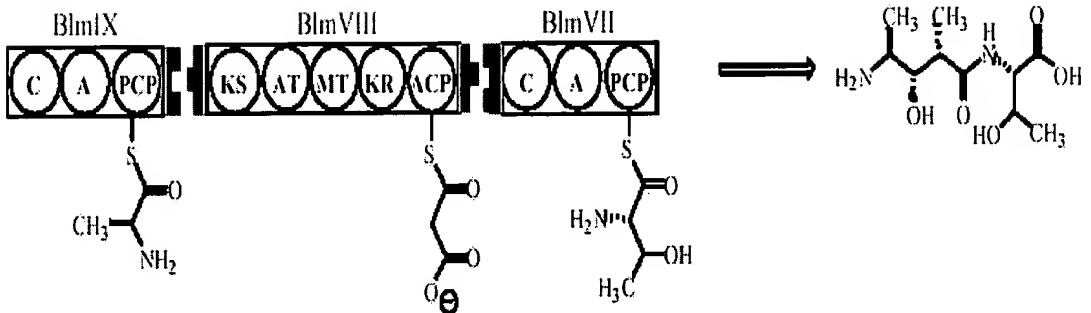


Fig. 6B

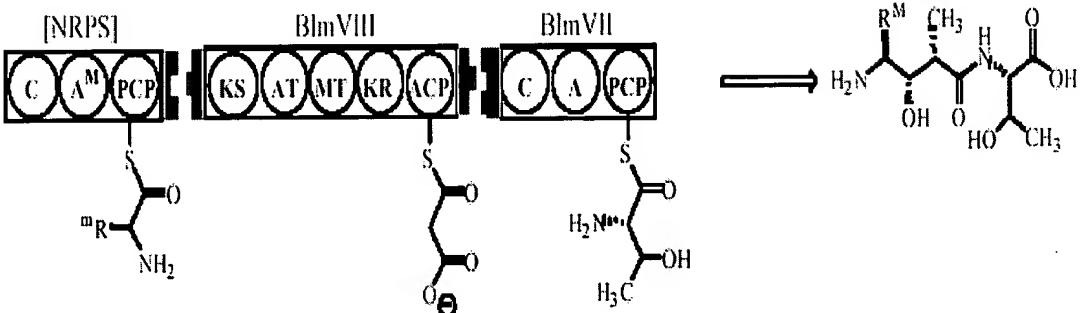
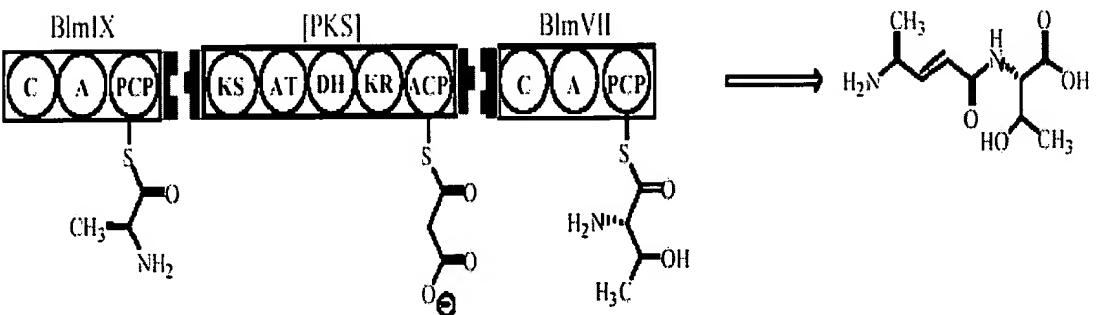


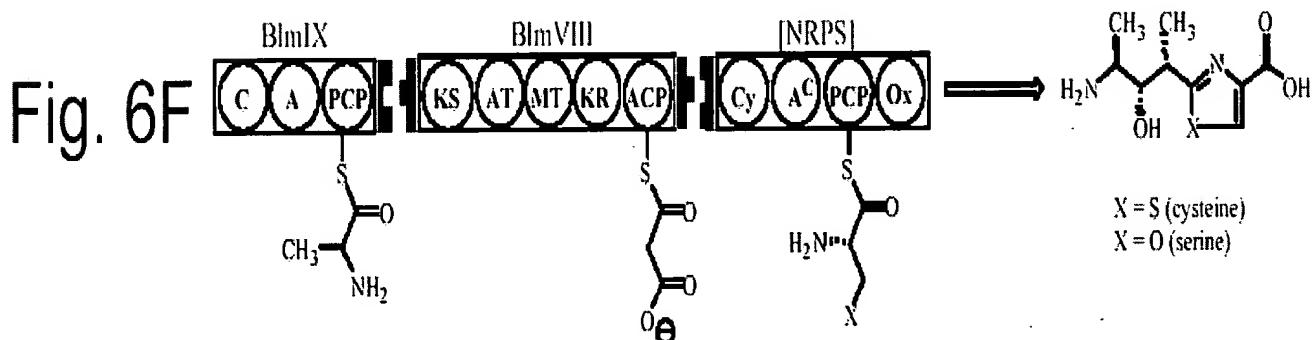
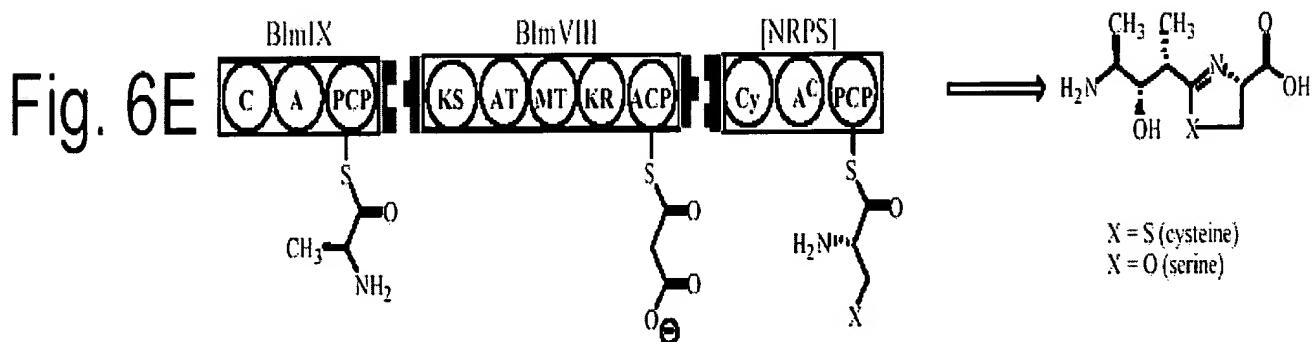
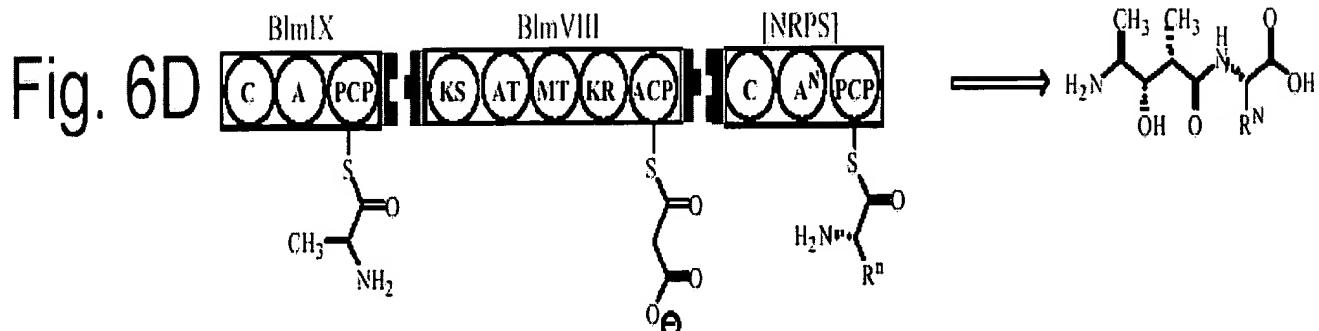
Fig. 6C





BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES
Ben Shen *et al.*
Serial No: 09/477,962
Atty Docket NO: 407T-895820US

10/19





BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES
Ben Shen *et al.*
Serial No: 09/477,962
Atty Docket NO: 407T-895820US

14/19

-18 RBS
CC GGACGG CGGCGCGCTC
ATGAGGGGGGGGGGGGGGGAGGGAGCCCCGGGGGGGGGGCTCGAACGGGACATCGGGGGGATCTGGGGGGAGACCGCTGGCAGGGACAGCGTC 93
M S A P R G E R T R R R A L E R D I A A I W A E T L G R D S V
GGGGGGCACGGAGGACTTGCGGGCTGGGGGGCAACTCATCCAGGACATCAAGATCACCAACGGGTGGAGGAACCTCGTCGACGCCGAGCTG 186
G P H E D F A A L G G N S I H A I K I T N R V E E L V D A E L
TCCATCGGGTCTGCTCGAGACCGGACCGTGGGGGGCATGACGGACCGTCCACGGGGAGCGGGACCGTGA 273
S I R V L L E T R T V A G M T D H V H A T L T G E R D R *

Fig. 8C

Grs-2	3045-ISIGTEYVAPFTMLEGKLEEIWKDVLGLQRV:IHDDFETIIGGHSL-3089
Srfa-3	960-DQLAEEWIGPPNEMEETIAQIWSEVILGRKQISIHDDFALGGHSL-1004
Vir-S	557-GRSVEGRGVPPRTQQEIILASLFAEVILGSKV:IHEDFEDLGCHSL- 601
Saf-B	1661-LDPGQDYLAPENELEARIAIWEGLIRRERV-VHDSFEDLGGNSL-1705
BlmI	1-MSAPRGERTRRALERDIAAIWAETLGRDSV-PHEDEAALGGNSI- 45
consensus	1-i g eyvapR le ia iw evLgr rvGiHddff 1GGhSl- 45

Grs-2	3090-KAMAVISQVHKECQTIEVPLRVLFETPTIQGLAKYIEETDTEQYMA-3134
Srfa-3	1005-KAMTAVPH.QQELGIDLPVKLLFLAPPIAGISAYLKNGGSDGLQD-1048
Vir-S	602-LTRLTSRIRTVLGAIEIAVRDLFEAPIVEALAAETLEAREVRPAL- 646
Saf-B	1706-LTRLATRLAATLQVOAGVRTVFHRIVAAQAAHFTQATKTHQAH-1750
BlmI	46-H-IKITNRVEELVDAELSIRVLLETRIVAGMTDHVHATLTGERDR- 90
consensus	46-kAmrv srv l ev vrvlfE pTvagla i g t - 90

Fig. 9